REMARKS

Claims 1-20 are pending, of which claims 1, 9 and 17 are independent claims. Claims 1-20 stand rejected under Section 112 for failure to comply with the enablement requirement.

STATEMENT OF SUBSTANCE OF INTERVIEW

The applicant thanks the Examiner for the courtesy of an interview held on March 23, 2005. The applicant's representative, Tim Pham, and Examiner Richemond Dorvil participated. The participants discussed the Section 112 rejection. Examiner Dorvil stated that the Section 112 rejections will be withdrawn.

SECTION 112 REJECTIONS

Claims 1-16 stand rejected under 35 U.S.C. Section 112 as failing to comply with the enablement requirement. The Examiner states:

> Claims 1-16 contain limitations for transforming the distribution of the plurality of posterior probabilities in to a Gaussian distribution. Additionally, the claims contain limitations in which the transformation comprises taking the logarithm of the posterior probabilities or bypassing an output layer of the neural network. However, the specification does not contain a written description of how taking the logarithm of the posterior probabilities transforms the distribution of posterior probabilities into a Gaussian distribution. Further, the specification does not contain a written description of how bypassing an output layer of the neural network transforms the distribution of posterior probabilities into a Gaussian distribution.

Office Action of November 30, 2004, page 2.

The applicant respectfully traverses the rejection. As discussed in the interview, there is no requirement under Section 112, as suggested by the Examiner in the Office Action, that the specification includes an explanation of why taking the logarithm or bypassing an outer layer of a neural network makes a distribution more Gaussian. "The test of enablement is whether one of ordinary skill in the art could make or use the invention from the disclosures in the patent coupled with information known in the art without undue experimentation." M.P.E.P. Section 2164.01 (quoting from *In re Wands*, 858 F.2d 731, 737 (Fed. Cir. 1988). The applicant's

specification, at page 4, explains that original features derived from an audio stream are input into a neural network trained to estimate subword posterior probabilities. An example of a suitable neural network is a multi-layer perceptron (MLP) phone classifier. The output of the neural network is subword posterior probabilities. This output is generally skewed with respect to a Gaussian distribution. The output is transformed to make the probabilities more Gaussian. The applicant's specification expressly states that the transformation can be effected by, for example, taking the logarithm of the probabilities or by-passing the outer layer of the neural network when a softmax non-linearity is placed in the outer layer. *See* Specification, p. 4. The applicant respectfully submits that the specification complies with the enablement requirement because one of ordinary skill would know how to take the logarithm of probabilities, which operation is described in college texts and well known. Furthermore, one of ordinary skill in the art would know how to bypass an outer layer of a neural network because such an operation is described in college texts and well known. For the above reasons, the applicant respectfully submits that the rejection is improper.

Claims 17-20 stand rejected under 35 U.S.C. Section 112 as failing to comply with the enablement requirement. The Examiner states:

> Claims 17-20 contain limitations for non-linearly merging the set of pluralities of posterior probabilities into a merged plurality of posterior probabilities using a second neural network and transforming the distribution of the merged plurality of posterior probabilities into a Gaussian distribution. However, the specification does not contain a written description of how the non-linearly merging of posterior probabilities is achieved. Further, the specification does not contain a written description of how taking the logarithm of the merged posterior probabilities transforms the distribution of posterior probabilities into a Gaussian distribution.

Office Action of November 30, 2004, page 3.

The applicant respectfully traverses the rejection. Regarding the step of taking the logarithm, the applicant respectfully submits that, for reasons stated above, the rejection is improper. Regarding the non-linear merging, the applicant's specification, at page 6 and FIG. 3, describes how speech input is separated into critical spectral bands and time sampled to provide *n* critical bands inputs 50-1 to 50-*n*, each of which is input to a corresponding one of MLPs 52-1

to 52-*n*, each of which estimates the subword probability within the spectral band input to it. The separate sets of posterior probabilities are combined, in a merging MLP 54, into a single set of merged probabilities. *See* Specification, page 6. The applicant respectfully submits that one of ordinary skill in the art would know how to connect outputs of MLPs 52-1 to 52-*n* to inputs of MLP 54, as shown in FIG. 3. Furthermore, one of ordinary skill in the art would know that MLPs can be non-linear because non-linear MLPs are well known and described in college texts. For the above reasons, the applicant respectfully submits that the rejection is improper.

The applicant respectfully requests that all pending claims be allowed. Please apply $55, as well as any other appropriate charges or credits, to deposit account 06-1050.

Respectfully submitted,

Date: March 25, 2005

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